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YSTEM:OS - DIALOG OneSearch
  File   2:INSPEC  1969-2002/Nov W3
         (c) 2002 Institution of Electrical Engineers
*File   2: Alert feature enhanced for multiple files, duplicates
removal, customized scheduling. See HELP ALERT.
  File   8:Ei Compendex(R)  1970-2002/Nov W2
         (c) 2002 Elsevier Eng.  Info. Inc.
*File   8: Alert feature enhanced for multiple files, duplicates
removal, customized scheduling. See HELP ALERT.
  File 144:Pascal  1973-2002/Nov W3
         (c) 2002 INIST/CNRS

      Set  Items  Description
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?s (stabilis? or stabiliz? or fix? or pinn?)(5n)(end or ends or edges or edge) and (GMR
 or spin-valve or spin(w)valve or MRAM or magnetic(3w)memory)
            76095  STABILIS?
           222814  STABILIZ?
           472342  FIX?
            43845  PINN?
           352542  END
            49007  ENDS
            77132  EDGES
           255844  EDGE
             6586  (((STABILIS? OR STABILIZ?) OR FIX?) OR PINN?)(5N)(((END
                   OR ENDS) OR EDGES) OR EDGE)
             4135  GMR
               20  SPIN-VALVE
           370426  SPIN
            69844  VALVE
             2212  SPIN(W)VALVE
              232  MRAM
          1139227  MAGNETIC
           261824  MEMORY
             2562  MAGNETIC(3W)MEMORY
      S1       11  (STABILIS? OR STABILIZ? OR FIX? OR PINN?)(5N)(END OR ENDS
                   OR EDGES OR EDGE) AND (GMR OR SPIN-VALVE OR SPIN(W)VALVE
                   OR MRAM OR MAGNETIC(3W)MEMORY)
?rd
...completed examining records
      S2        7  RD (unique items)
?t s2/full/all
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2/9/1 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC

7065455 INSPEC Abstract Number: A2001-22-0755-004, B2001-11-7230-068
Title: Ultra-low hysteresis and self-biasing in GMR **sandwich sensor elements**
Author(s): Anderson, J.M.; Pohm, A.V.
Author Affiliation: Nonvolatile Electron. Inc., Eden Prairie, MN, USA
Journal: IEEE Transactions on Magnetics Conference Title: IEEE Trans. Magn. (USA) vol.37, no.4, pt.1 p.1989-91
Publisher: IEEE,
Publication Date: July 2001 Country of Publication: USA
CODEN: IEMGAQ ISSN: 0018-9464
SICI: 0018-9464(200107)37:4:1L.1989:UHSB;1-#
Material Identity Number: I101-2001-011
U.S. Copyright Clearance Center Code: 0018-9464/2001/$10.00
Conference Title: Eighth Joint Magnetism and Magnetic Materials Intermag Conference
Conference Date: 7-11 Jan. 2001 Conference Location: San Antonio, TX, USA
Document Number: S0018-9464(01)06196-9
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)

Treatment: Experimental (X)
Abstract: The experiments performed demonstrate that by **pinning** the **edges** in a **GMR** sandwich sensor element a fivefold and greater increase in edge coercivity and a corresponding tenfold decrease in hysteresis can be achieved. The effect is accompanied by self-biasing at submicrometer dimensions. Analysis suggests that the **edge** **pinning** effect is facilitated by forming a bridge between the magnetic layers of a sandwich that establishes a path for exchange coupling. The energy associated with this exchange increases the field needed to reverse the **edge** magnetizations. This **stabilizes** the magnetizations at the interior of the element as they rotate under an applied field. **Edge** **pinning** is measured in terms of its "edge spin threshold," or EST, defined as the field at which the characteristic separation in the magnetoresistive transfer curve abruptly closes, signifying complete **edge** reversal. Hard **edge** **pinned** structures have ESTs greater than the material's ninety-percent saturation field, a test benchmark equal to approximately five times the anisotropy, while soft edge structures have smooth transitions that occur below the ninety-percent saturation field. EST thresholds range from 100 Oe to over 700 Oe depending on the process. For field excursions less than the EST, the material exhibits significantly lower hysteresis. Experimental values of less than 0.5 Oe hysteresis have been recorded for field sweeps of two hundred-fifty Oe (0.2%), compared to about 5.0 Oe observed in soft sandwiches over the same range. A second feature of hard edge devices is self-biasing, which has been demonstrated in devices with sub-micrometer line widths. Biasing at one-half the signal output can be achieved in devices approximately 0.7 micrometers wide and can be adjusted using sense current. These features are valuable for sensor and signal isolator applications by providing an ultra-low hysteresis, bipolar output without the need for power-consuming bias coils. (2 Refs)
Subfile: A B
Descriptors: coercive force; giant magnetoresistance; magnetic hysteresis ; magnetic multilayers; magnetic sensors; magnetisation reversal; magnetoresistive devices
Identifiers: **GMR** sandwich sensor elements; ultralow hysteresis; self-biasing; edge coercivity; **edge** **pinning** effect; exchange coupling path; edge magnetization reversal; edge spin threshold; magnetoresistive transfer curve; hard **edge** **pinned** structures; soft edge structures; bipolar output
Class Codes: A0755 (Magnetic instruments and techniques); A7570P (Enhanced magnetoresistance in magnetic films and multilayers); A7560E (Magnetization curves, hysteresis, Barkhausen and related effects); B7230 (Sensing devices and transducers); B7310L (Magnetic variables measurement); B3120J (Magneto-acoustic, magnetoresistive, magnetostrictive and magnetostatic wave devices); B3110M (Magnetic multilayers)

2/9/2 (Item 2 from file: 2)
DIALOG(R)File 2:INSPEC

5712375 INSPEC Abstract Number: A9722-7570-005, B9711-3110M-005
Title: Magnetisation reversal in spin - valve **structures**
Author(s): Goodman, A.M.; O'Grady, K.; Walmsley, N.S.; Parker, M.R.
Author Affiliation: Sch. of Electron. Eng., Univ. Coll. of North Wales, Bangor, UK
Journal: IEEE Transactions on Magnetics Conference Title: IEEE Trans. Magn. (USA) vol.33, no.5, pt.1 p.2902-4
Publisher: IEEE,
Publication Date: Sept. 1997 Country of Publication: USA
CODEN: IEMGAQ ISSN: 0018-9464
SICI: 0018-9464(199709)33:5:1L.2902:MRSV;1-Q
Material Identity Number: I101-97007
U.S. Copyright Clearance Center Code: 0018-9464/97/$10.00
Conference Title: 1997 IEEE International Magnetics Conference (INTERMAG '97)
Conference Sponsor: Magn. Soc. IEEE

Conference Date: 1-4 April 1997 Conference Location: New Orleans, LA, USA
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Applications (A); Practical (P); Experimental (X)
Abstract: Magnetisation reversal has been studied in detail for **spin - valve** structures based on the Ta/NiFeCo/Cu/NiFeCo/FeMn system. The objective of the work is to examine the role of inter and intra-layer coupling in the systems and to this **end** the thickness of the **pinned** layer was varied so as to examine the effects and the extent of the exchange coupling from the FeMn layer. We find that as the thickness of the pinned layer is decreased the effect of the exchange coupling increases in that the loop of the pinned layer is shifted to higher fields and that the switching region of the loop broadens substantially and the reversal becomes bimodal. (9 Refs)
Subfile: A B
Descriptors: cobalt alloys; copper; exchange interactions (electron); giant magnetoresistance; iron alloys; magnetic heads; magnetic multilayers; magnetic switching; magnetic thin film devices; magnetisation reversal; magnetoresistive devices; manganese alloys; nickel alloys; remanence; tantalum
Identifiers: magnetisation reversal; **spin - valve** structures; intra-layer coupling; inter-layer coupling; pinned layer; exchange coupling ; switching region; bimodal reverse; **GMR** ; magnetic heads; switching field distribution; Ta-NiFeCo-Cu-NiFeCo-FeMn
Class Codes: A7570F (Magnetic ordering in multilayers); A7550R (Magnetism in interface structures); A7530E (Exchange and superexchange interactions in magnetically ordered materials); A7560E (Magnetization curves, hysteresis, Barkhausen and related effects); B3110M (Magnetic multilayers); B3120B (Magnetic recording); B3120N (Magnetic thin film devices); B3120J (Magneto-acoustic, magnetoresistive, magnetostrictive and magnetostatic wave devices)
Chemical Indexing:
Ta-NiFeCo-Cu-NiFeCo-FeMn int - NiFeCo int - FeMn int - Co int - Cu int - Fe int - Mn int - Ni int - Ta int - NiFeCo ss - Co ss - Fe ss - Ni ss - FeMn bin - Fe bin - Mn bin - Cu el - Ta el (Elements - 1,3,1,3,2,6)

2/9/3 (Item 3 from file: 2)
DIALOG(R)File 2:INSPEC

5587897 INSPEC Abstract Number: B9707-3120B-003
Title: Narrow end-on giant magnetoresistance READ-head sensors
Author(s): Pohm, A.V.; Beech, R.S.; Anderson, J.M.; Black, W.C.
Author Affiliation: Nonvolatile Electron. Inc., Eden Prairie, MN, USA
Journal: IEEE Transactions on Magnetics vol.33, no.3 p.2392-6
Publisher: IEEE,
Publication Date: May 1997 Country of Publication: USA
CODEN: IEMGAQ ISSN: 0018-9464
SICI: 0018-9464(199705)33:3L.2392:NGMR;1-3
Material Identity Number: I101-97005
U.S. Copyright Clearance Center Code: 0018-9464/97/$10.00
Document Number: S0018-9464(97)02950-6
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: End-on (vertical) giant magnetoresistance (**GMR**) head sensors can be made with high sensitivity and high permeability by use of the parallel coupling existing in sandwich materials and by having the effective easy axis along, rather than across, the sensor. Sensors with widths ranging from 0.75-2.0 mu m and with sense currents of 3-4 mA per mu m yield near linear peak to peak outputs greater than 1 mV in shielded head structures. For stability, the **edge** magnetization must be **pinned** . **End** -on head sensors are found to be particularly attractive for narrow heads. (6 Refs)
Subfile: B

Descriptors: giant magnetoresistance; magnetic heads; magnetic sensors; magnetoresistive devices
Identifiers: end-on giant magnetoresistance read head sensor; sensitivity ; permeability; parallel coupling; sandwich material; easy axis; vertical head sensor
Class Codes: B3120B (Magnetic recording); B3120J (Magneto-acoustic, magnetoresistive, magnetostrictive and magnetostatic wave devices)

2/9/4 (Item 4 from file: 2)
DIALOG(R)File 2:INSPEC

5414764 INSPEC Abstract Number: B9612-3120J-012
Title: Micromagnetics of spin valve **memory cells**
Author(s): Youfeng Zheng; Jian-Gang Zhu
Author Affiliation: Center for Micromagnetics & Inf. Technol., Minnesota Univ., Minneapolis, MN, USA
Journal: IEEE Transactions on Magnetics Conference Title: IEEE Trans. Magn. (USA) vol.32, no.5, pt.1 p.4237-9
Publisher: IEEE,
Publication Date: Sept. 1996 Country of Publication: USA
CODEN: IEMGAQ ISSN: 0018-9464
SICI: 0018-9464(199609)32:5:1L.4237:MSVM;1-U
Material Identity Number: I101-96007
U.S. Copyright Clearance Center Code: 0018-9464/96/$05.00
Conference Title: 1996 IEEE International Magnetics Conference (INTERMAG '96)
Conference Sponsor: Magn. Soc. IEEE
Conference Date: 9-12 April 1996 Conference Location: Seattle, WA, USA
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Theoretical (T)
Abstract: This paper presents a systematic micromagnetic analysis on **spin valve GMR** memory elements. It is found that for submicron size **spin valve** elements, **edge** demagnetization field, arising from the **pinned** layer, results in significant magnetization curling at the end edges of the free layer. This edge demagnetization phenomenon yields significant degradation of device performance. It is proposed that by making the pinned film element slightly longer than the free layer so that the **ends of the free** and **pinned** layers are separated, the **edge** demagnetization in the free layer can be essentially eliminated. (4 Refs)
Subfile: B
Descriptors: demagnetisation; giant magnetoresistance; magnetic film stores; magnetoresistive devices
Identifiers: **spin valve GMR** memory cell; micromagnetic analysis; edge demagnetization field; pinned layer; magnetization curling
Class Codes: B3120J (Magneto-acoustic, magnetoresistive, magnetostrictive and magnetostatic wave devices); B3120N (Magnetic thin film devices)

2/9/5 (Item 5 from file: 2)
DIALOG(R)File 2:INSPEC

00988180 INSPEC Abstract Number: C76031596
Title: Stripe-line coil for magnetic-field generation in bubble memory devices
Journal: Computer Design vol.15, no.7 p.116
Publication Date: July 1976 Country of Publication: USA
CODEN: CMPDAM ISSN: 0010-4566
Language: English Document Type: Journal Paper (JP)
Treatment: Practical (P)
Abstract: An improved coil for **magnetic** bubble **memory** devices consists of a stripe-line coil pattern with varying widths of conductor

etched from a conduc[illegible]e film supported on a pol[illegible]de film. The multiple-layer stripe-line coil has conductors in series along the layer direction, rather than in the axial direction, which minimises potential differences. The stripe-line layer is wrapped around a **fixed** coil form, and the outer **ends** of the conductors are connected electrically as a single loop to form a field coil. Conductor length, width, and spacing are controlled by the etched pattern, resulting in coil parameters, such as size, shape, and the like, with less variation from run to run than in wire-wound coils. The stripe-line coil arrangement is simpler, easier to wind, and has better field uniformity inside the coil and less coil loss at high frequency operation. (0 Refs)
Subfile: C
Descriptors: magnetic bubble devices
Identifiers: polyamide film; fixed coil form; bubble memory devices
Class Codes: C5320E (Storage on stationary magnetic media)

2/9/6 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

duplicate

04539284 E.I. No: EIP96100378690
Title: Micromagnetics of spin valve **memory cells**
Author: Zheng, Youfeng; Zhu, Jian-Gang
Corporate Source: Univ of Minnesota, Minneapolis, MN, USA
Conference Title: Proceedings of the 1996 IEEE International Magnetics Conference (INTERMAG'96). Part 1 (of 3)
Conference Location: Seattle, WA, USA Conference Date: 19960409-19960412
E.I. Conference No.: 45461
Source: IEEE Transactions on Magnetics v 32 n 5 pt 1 Sep 1996. p 4237-4239
Publication Year: 1996
CODEN: IEMGAQ ISSN: 0018-9464
Language: English
Document Type: JA; (Journal Article) Treatment: T; (Theoretical); X; (Experimental)
Journal Announcement: 9612W4
Abstract: This paper presents a systematic micromagnetic analysis on **spin valve GMR** memory elements. It is found that for submicron size **spin valve** elements, **edge** demagnetization field, arising from the **pinned** layer, results in significant magnetization curling at the end edges of the free layer. This edge demagnetization phenomenon yields significant degradation of device performance. It is proposed that by making the pinned film element slightly longer than the free layer so that the **ends** of the free and **pinned** layers are separated, the **edge** demagnetization in the free layer can be essentially eliminated. (Author abstract) 4 Refs.
Descriptors: *Random access storage; Magnetic storage; Magnetization; Ferromagnetic materials; Magnetic films; Demagnetization; Computer simulation; Switching; Geometry; Magnetic hysteresis
Identifiers: **Spin valve** memory cells; Micromagnetics; Ferromagnetic layers
Classification Codes:
722.1 (Data Storage, Equipment & Techniques); 708.4 (Magnetic Materials); 701.2 (Magnetism: Basic Concepts & Phenomena); 723.5 (Computer Applications); 921.4 (Combinatorial Mathematics, Includes Graph Theory, Set Theory)
722 (Computer Hardware); 708 (Electric & Magnetic Materials); 701 (Electricity & Magnetism); 723 (Computer Software); 921 (Applied Mathematics)
72 (COMPUTERS & DATA PROCESSING); 70 (ELECTRICAL ENGINEERING); 92 (ENGINEERING MATHEMATICS)

2/9/7 (Item 1 from file: 144)
DIALOG(R)File 144:Pascal

15615184 PASCAL No.: 02-0319409

Effects of Stray Fields in Flat-End and Pointed-End NiFe/Cu/NiFe/NiO Wires

KIMURA Takashi; WAKAYA Fujio; GAMO Kenji
Department of Physical Science, Graduate School of Engineering Science, Osaka University, 1-3 Machikaneyama-cho, Toyonaka, Osaka 560-8531, Japan; Research Center for Materials Science at Extreme Conditions, Osaka University, 1-3 Machikaneyama-cho, Toyonaka, Osaka 560-8531, Japan

Journal: Japanese Journal of Applied Physics, Part I : Regular papers, short notes & review papers, 2001-11, 40 (11) 6357-6359
ISSN: 0021-4922 CODEN: JAPNDE Availability: INIST-9959
Document Type: P (Serial) ; A (Analytic)
Country of Publication: United States
Language: English

The effects of the stray fields induced by pinned layers in two-types of 1- mu m-wide NiFe/Cu/NiFe/NiO wires were investigated using the giant magnetoresistance effect and exchange anisotropy. One wire had flat ends and the other had pointed ends. It was found that the switching field of the free layer in the flat-end wire was smaller than that in the pointed-end wire because of the larger demagnetizing and stray fields and that the stray field in the pointed-end wire can be negligible. The stray field estimated from the experimental result in the flat-end wire was consistently explained by the magnetic charges at the wire **end** in the **pinned** layer. (c) 2001 The Japan Society of Applied Physics

English Descriptors: Experimental study; Magnetic fields; Magnetic multilayers; **Spin valve** ; Quantum wires; Nanostructured materials; Giant magnetoresistance; Magnetic domains

French Descriptors: 7570C; Etude experimentale; Champ magnetique; Multicouche magnetique; Vanne spin; Fil quantique; Nanomateriau; Magnetoresistance geante; Domaine magnetique

Classification Codes: 001B70E70C